

Assessment of Student Learning:

A Web-based Module

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Abstract: This research examines the planning and design of a web-based tutorial created to assist community-college faculty members in better understanding approaches to student assessment. Kauai Community College has undergone a significant revision of assessment practices, and as the assessment program has been refined, on-going professional development workshops have been conducted to keep faculty members informed on best practices in assessment. Due to limited resources, face-to-face workshops cannot be offered often enough to fit the schedules of all faculty members. This instructional design project involved the development of a web-based assessment module using DemoCreator that is accessible to faculty anytime, anywhere. The module described in this paper focuses on the reporting of assessment data. Qualitative data was collected from interviews with participating faculty members to determine what issues arose in the use of a web-based assessment module.

Introduction

The assessment of student learning is, in essence, a reflective teaching practice in which a teacher determines what is essential for students to learn, measures that learning, and then uses those measurements to improve future teaching. In recent years, there has been a dramatic increase in the attention paid to assessment at colleges and universities. Accreditation agencies are one of the driving forces of this movement as they urge higher learning institutions to shift their focus from what faculty teach to what students learn (Stivers & Phillips, 2009). Colleges now have detailed assessment programs, in which every stage of the assessment process is documented, creating a feedback loop in which it is not enough to simply define objectives and measure

student learning- it is also necessary to analyze those learning gains, and to implement changes to curriculum and teaching as appropriate to continuously improve student learning (Wehlburg, 2007).

At Kauai Community College, the assessment program has been evolving for several years, and the procedures that faculty need to follow to report their assessment data have changed. To address these changes, a number of face-to-face professional development workshops have been conducted. One important new feature of KCC's assessment process has been the adoption of the Course Assessment Data Reporting (CARD) form – an Excel-based spreadsheet designed by KCC's assessment coordinator. Faculty are expected to submit assessment data each semester using the CARD. However, several faculty members have had difficulty in correctly completing the CARD form, and many have asked for additional assistance with the CARD.

This instructional design project describes the development of a web-based module instructing KCC faculty on reporting assessment data using the CARD. By creating and making available an easily accessible web-based module, KCC instructors should be better able to successfully report their assessment data.

Background

Student Assessment Best Practices

A popular approach to assessment is to use student learning outcomes (SLOs) as the core of an assessment program. SLOs describe what a student should be able to *do*, rather than simply *know*, at the successful completion of a course (Stiehl, 2002). SLOs define what benefit students will have upon completing a course or a program of study and answer the question: Why are we covering the content that we value so highly? Articulating SLOs is the first stage of the assessment process. Measuring student achievement of SLOs, analyzing that measurement data, and making informed decisions based upon that data complete the assessment cycle. By focusing not only on what students should know, but also what they should be able to do after successfully completing a course, a well-organized assessment framework can help to ensure student success as learners progress through a series of courses in which skills and knowledge are built upon skills mastered in previous classes (Steihl, 2002).

Although the purpose of assessment is to improve the quality of education, there is often resistance from faculty to conducting assessment (Munson, 2007). Faculty may face a number of barriers in buying-in to assessment practices, including a belief that assessment is reductive, that it overly simplifies education, that the workload of assessment is unrealistic, and that it is intrusive and limits academic freedom (Axleson & Flick, 2009). In order to overcome these barriers, it is essential that assessment programs be well-designed. A number of factors can influence an institution's ability to sustain the momentum of early-adopting faculty members and to create organizational environments that foster the conditions to support an on-going assessment program. Among the factors that define good assessment practices are: assessment should be of interest to faculty and not merely a bureaucratic exercise; should have clearly defined purposes; have clearly defined products that are communicated to all participants and inform decision making (Axleson & Flick, 2009).

Professional Development

In a survey of 179 colleges and universities, Jones (2009) found that faculty and staff from many institutions identified professional development as a necessary resource that was crucial to the implementation and sustainability of assessment programs. Most college faculty have extensive knowledge of their area of expertise; however, not all college instructors have received training in the assessment of student learning.

Professional development should be informed by what research suggests will lead to improved outcomes for both teachers and students. Effective professional development requires the design of sequenced, structured and comprehensive lessons (Angulo & de la Rosa, 2002). Abdal-Haqq (1996) explains that effective professional development is ongoing, collaborative, provides adequate time for support, is accessible, and recognizes teachers as professionals and adult learners. Adult learning is focused on problem solving that is pertinent to specific life situations, and adults want to be able to apply the solutions immediately (Brookfield, 1986). Successful professional development is often self-directed and takes into account interpersonal, institutional, and intellectual factors that may enable or inhibit learning (Caffarella & Zinn, 1999). It is important to provide on-going, sustained professional development opportunities to faculty and staff, because one-time, single session workshops have little to no impact on behavior (Licklider, Schelker & Fulton, 1997). In regards to assessment, a successful professional development program provides support and guidance to faculty at all stages of the assessment cycle- from planning, to implementation, to analysis and interpretation of data, to using the results of assessment to implement appropriate changes (Jones, 2009).

On-line Professional Development

Online technologies play a crucial role in professional development because they are able to address some of the challenges that face-to-face professional development sessions encounter, such as availability of time and the need for an ongoing and accessible sequence of instruction. Online professional development can offer instructors support and guidance when resources for similar face-to-face programs are not available (Ferry, Kiggins, Hoban & Lockyer, 2000). Online tools can also help educators gain better access to each other and to resources (Wearmouth, Smith & Soler, 2004). Online tools can be an efficient use of limited professional development resources, as they allow greater flexibility because they can be accessed anytime and anywhere; they can also address different learning styles through the implementation of multi-sensory experiences and can be self-paced and individualized. The use of synchronous and asynchronous modes can enable ongoing collaboration among educators (Moore & Barab, 2002). Additionally, online tools can help to maintain consistency in the delivery of quality professional development over time (Fenton & Watkins, 2007).

Methodology

Goals and Objectives

An instructional design module was created and presented to participants on the assessment of student learning at Kauai Community College. The goal of the module is to instruct KCC faculty on the use of the CARD form. Upon completion of the module, faculty members will understand how to report assessment data to the college.

Instructional Module

The instructional module was based upon the face-to-face professional development sessions that had been conducted regarding the CARD form, and were informed by feedback from faculty who had attended the sessions and by those who had difficulty in completing the CARD.

The module was created using DemoCreator, which allows for the creation of a narrated video of a computer screen, and has the capability to include flash-based buttons. This makes it possible to create an interactive, web-based module. The CARD module consists of two parts; part one describes how to get started on the CARD, and part two describes how to import student data into the CARD.

Target and Sample Population

This module is intended for teaching faculty at KCC. The faculty members at the college teach in a broad range of disciplines, from automotive technology and culinary arts to mathematics and humanities. All instructional faculty are responsible for teaching students, and are also responsible for assessing the learning of their students.

Six faculty members from different academic disciplines were selected to participate in this study. The module is intended to be of use to all faculty members, but because continuing faculty have already had some training and have some experience with assessment, the module will pay particular attention to new faculty members.

Evaluation Procedures

Once the participants agreed to participate and completed consent forms provided by the researcher, they were given the link to the online module and instructed to complete the module on their own. After the participants completed the module, individual interviews were scheduled and conducted in the researcher's office. The interviews were semi-structured, with questions designed to elicit what the participants liked and did not like about the module, what worked and did not work, and if they felt they met the learning objectives for the module. The interviews average thirty minutes each.

The notes from the interviews were analyzed by the researcher and the responses coded according to themes which emerged from the interview data. The data was then summarized and used to analyze the research question: What issues arise in the use of a web-based instructional design module designed to instruct faculty members on how to understand the assessment process at Kauai Community College?

Results

All participants were interviewed without problems, with the interviews taking less than fifteen minutes each. Coding of the interview data revealed three main themes: 1) multimedia, 2) interactivity, and 3) appropriateness.

Multimedia

When asked about what features of the module were most helpful, several of the participants mentioned certain multimedia elements. Mayer (2008) explains the benefits of multimedia in learning through the multimedia principle and the modality principle. The multimedia principle is that deeper learning occurs when animation and narration are used together, rather than using narration alone. The modality principle is that deeper learning occurs when animation and narration are used together rather than animation and on-screen text. Feedback from participants regarding multimedia included:

- The audio and visual together helped.
- You can physically see what is being clicked on with the animations, which make it easy to understand.
- The narration was easy to understand, and the pop-up balloons with text gave me time to process and think before moving on.

Interactivity

Another frequent response from participants about what features were most helpful involved the interactive nature of the modules. The ability to interact with and control the learning environment can have a number of positive effects, including increasing interest in the activity and satisfaction with the learning experience (Williams, 1996). Interactivity and learner control can also allow for repeatability, and for the learner to move through information at a pace and manner that is comfortable for them, which can also improve learning (Allessi & Trollop, 2001). Feedback from participants regarding interactivity included:

- The most helpful thing was the ability to choose to get more information on certain topics. It's nice that the information was there, but that you don't have to sit through it if you are already familiar with the process.
- The links to additional information were helpful.
- I'm not used to the interactive format, but once I realized it, I enjoyed it and found it easy to use.

One of the suggestions for improvements to the module also involved interactivity. One participant suggested that there should be a way for a user to leave comments.

Appropriateness

The primary motivation of creating the modules was to create a resource that was appropriate for use by faculty at KCC, and all of the participants commented during the interviews on the appropriateness of the module.

- There is a need for this.
- It's very straight forward; it holds your hand, and there is no need to be familiar with Excel or Banner.
- It's a user-friendly, easy and informative tool.

- It does a great job of making it easy for others to complete the CARD.

Discussion and Conclusion

The need for ongoing professional development at colleges and universities to support the assessment of student learning is apparent (Jones, 2009). By offering opportunities for professional development, faculty can access the information they need when and where they need it.

Online modules have the ability to present content in an interactive manner using a multimedia approach. Prior research has shown that multimedia elements and learner control through interactivity can improve learning (Mayer, 2008; Williams, 1996; Allessi & Trollop, 2001). When asked what features of the module created for this study were the most helpful in achieving the learning goals, participants spoke most often about the multimedia and interactive features. Prior to the development of this module, the only assistance available to faculty to instruct them on reporting assessment data were the face-to-face workshops, which were offered only a limited number of times, and written instructions which accompanied the CARD form, which did not have multimedia or interactive features.

When asked what could be done to improve the module, some participants mentioned the need for more explicit instructions, such as text or narration stating that the user must click on a button or image in order to continue the module. Other suggested changes were to improve the appearance of some elements- "The buttons looked clunky". From these comments, it is seems that in order to design a successful online module, attention should be paid to both style and the clarity of instructions.

Based up the feedback from participants, this research study has shown that it is possible to create online professional development modules that are successful. Web-based professional development modules have several advantages: they can be used by faculty anytime and anywhere, they require fewer resources than a long series of face-to-face workshops, they can incorporate multimedia features that improve learning, and they can generate user interest through interactive features that allow for greater learner control.

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